



Patent
Attorney's Docket No. 0001-00001CON1

Certificate of Mailing

I hereby certify that this correspondence is being addressed as set out in 37 CFR §1.1(a) and deposited with the U.S. Postal Service with sufficient postage as first class mail on June 8, 2006.

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Tony M. Cole

Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	
)	
Patricia CRUZ-PEREZ <i>et al.</i>)	Group Art Unit: 1637
)	
Application No.: 10/804,339)	Examiner: Samuel C. Woolwine
)	
Filed: March 19, 2004)	
)	
For: METHOD FOR DETECTION OF)	
<i>Stachybotrys chartarum</i> IN PURE)	
CULTURE AND FIELD SAMPLES)	
USING QUANTITATIVE)	
POLYMERASE CHAIN REACTION)	

DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop: Amendments
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

I, Dr. Linda Stetzenbach, have reviewed the Office Action dated February 8, 2006, and the references cited by the Examiner therein for rejecting the claims of the present application, and hereby declare that:

1. I received my Ph.D. from the University of Arizona in Microbiology in 1986. I have worked in the field of environmental microbiology for 19 years, and have authored numerous papers, which are detailed on my attached CV. These include several peer-reviewed publications and book chapters on the use of polymerase chain reaction (PCR) for the detection of microorganisms of indoor air quality concern. Based on my education and years of experience, I have specific expertise in environmental microbiology, and particularly, in the use of PCR for the detection of environmental microorganisms, such as, for example, the fungal species *Stachybotrys chartarum*.

2. I have analyzed the reference "Quantitative Measurement of *Stachybotrys chartarum* conidia Using Real Time Detection of PCR Products with the TaqMan™ Fluorogenic Probe System," R.A. Haugland et al., Molecular and Cellular Probes (1999) 13: 329-340 (hereinafter "HAUGLAND") cited by the Office Action and state the following:

a. HAUGLAND discloses a method for detecting the fungal species *S. chartarum* that includes a primer and probe set that is species specific. However, the primers and probe disclosed by HAUGLAND do not include the primer and probe sets recited in Applicants' claims. HAUGLAND, thus, does not disclose or suggest the primer and probe sets disclosed and claimed in the present application.

3. I have analyzed the genomic sequences disclosed in GenBank GI: 3420911 (hereinafter "GENBANK"). Applicants' SEQ ID NOs. 1-5 are homologous to portions of the *Stachybotrys chartarum* genomic sequence deposited in GenBank with accession number AF081469. Several researchers have sequenced portions of the *Stachybotrys chartarum* genome and many of these have been published and/or submitted to DNA sequence repositories such as GenBank. The mere publication of a portion or the complete genome of an organism, however, does not make it a suitable region for PCR amplification. Species-specific primers and probes can

theoretically be derived from any DNA sequence; however that unique region in the target genome needs to be located first. The genomic sequence of the organism of interest would have to be compared with all the sequence information available in the genetic repositories and scientific literature databases in order to locate a unique region in the target genome. Extensive research and validation would have to then be conducted by means of specificity testing in order to design PCR primers and probes that are ultimately specific for the target organism and will not cross-react with other organisms.

2. I have analyzed the reference "Design Strategies and Performance of Custom DNA Sequencing Primers," Bio Techniques 27:528-536 (September 1999) (hereinafter "BUCK") cited by the Office action and submit the following:

a. BUCK discloses a methodology for designing non-species specific primers for the purpose of deciphering the sequence of all or part of a genome. The purpose of the sequencing reaction disclosed in BUCK is to decipher the sequence of all or part of a genome. In enzymatic sequencing reactions, priming of DNA synthesis is achieved by the use of a synthetic oligonucleotide (primer) complementary to a specific sequence on the DNA template strand (Sambrook, J., E.F. Fritsch, and T. Maniatis. 1989. DNA Sequencing, pp. 13.1-13.104. *In* Molecular Cloning. A Laboratory Manual. 2nd Edition. Cold Spring Harbor Laboratory Press, New York). BUCK demonstrates that nearly any primer sequence that is complementary to the template DNA is suitable for a sequencing reaction. BUCK's primers are sequencing primers which are by definition non-specific primers designed for the purpose of deciphering the sequence of all or part of a genome. These primers are normally designed with very little stringency so that they can bind almost any portion of DNA, even segments that have very little homology to the primer sequence, thus producing short strands of DNA of the genome of interest that may be pieced together for the purpose of sequencing part

or all of the genome. Therefore, these sequencing primers of BUCK cannot be utilized for the accurate and specific detection and amplification of target organisms.

b. For PCR detection of a target microorganism, knowledge of a unique DNA sequence is required, and then primers are selected that are complementary to DNA regions flanking the target sequence, and then tested to ensure that they do not cross-react with non-target DNA. Extensive research and validation would have to then be conducted by means of species specificity testing in order to design PCR primers and probes that are ultimately specific for the target organism and will not cross-react with other organisms. While the criteria for primer selection for sequencing reactions are flexible as demonstrated by BUCK, selection of optimal primers for PCR follows very stringent criteria and is the factor that is least predictable to troubleshoot (Ausubel, F.M., R. Brent, R.E. Kingston, D.D. Moore, J.G. Seidman, J.A. Smith, and K. Struhl. 1995. The Polymerase Chain Reaction, pp. 15.0.1-15.7.11. *In* Current Protocols in Molecular Biology. John Wiley & Sons, Inc., New York). Therefore, sequencing primers, such as those disclosed by BUCK, would not be utilized by those skilled in the art for the purpose of designing PCR primers and probes for the accurate and specific detection and amplification of target organisms. BUCK, thus, has no teaching that is relevant to the selection of a primer from a sequence of bases for use in identifying a specific target organism, such as *S. chartarum*.

3. In view of the above, my conclusion after analyzing the HAUGLAND, BUCK and GENBANK references is that the disclosures of these references, taken alone, or in combination, do not evidence that there was a reasonable expectation of success of deriving the primer and probe sets of the present application that includes primer (SEQ ID NO: 1) 5'GTTGCTTCGGCGGGAAC3', primer (SEQ ID NO: 2) 5'TTTGCGTTTGCCACTCAGAG3', and probe (SEQ ID NO: 5) 6-FAM-

5'CTGCGCCCGGATCCAGGC3'-TAMRA; or primer (SEQ ID NO: 3)
5'ACCTATCGTTGCTTCGGCG3', primer (SEQ ID NO: 4)
5'GCGTTTGCCACTCAGAGAATACT3' and probe (SEQ ID NO: 5) 6-FAM-
5'CTGCGCCCGGATCCAGGC3'-TAM; for use in determining the concentration of the
fungus *Stachybotrys chartarum* in a sample, wherein the primers and probe do not cross-react
with other fungal species when used in combination in quantitative polymerase chain
reaction.

4. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and, further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Date: June 7, 2006

Signature: _____



LIST OF EXHIBITS

A: CV of Dr. Linda Stetzenbach

EXHIBIT A

LINDA D. STETZENBACH

Professor, Environmental and Occupational Health Program
School of Public Health
August 1, 2005-present
University of Nevada, Las Vegas
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Previous Employment:

Director - Microbiology Division, August 1, 1987 – July 31, 2005, Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas

Education:

B.S. - Microbiology, January 1970
Department of Microbiology and Immunology
University of Arizona, Tucson, AZ 85721

Ph.D. - Microbiology, May 1986
Department of Microbiology and Immunology
University of Arizona, Tucson, AZ 85721

M.S. - Microbiology, May 1984
Department of Microbiology and Immunology
University of Arizona, Tucson, AZ 85721

Post-doctoral fellow, April 1986 - July 1987
Department of Veterinary Science
University of Arizona, Tucson, AZ 85721

Approximately ten years of clinical/medical microbiology experience (1970-1981) including 6 years at the Veterans' Administration Medical Center, Tucson, AZ (1975-1981).

Publications

Alvarez, A.J., M.P. Buttner, and **L.D. Stetzenbach**. 1995. PCR for Bioaerosol Monitoring: sensitivity and environmental interference. *Appl. Environ. Microbiol.* **61**:3639-3644.

Alvarez, A.J., M.P. Buttner, G.A. Toranzos, E.A. Dvorsky, A. Toro, T.B. Heikes, L.E. Mertikas, and **L.D. Stetzenbach**. 1994. The Use of Solid-phase Polymerase Chain Reaction for the Enhanced Detection of Airborne Microorganisms. *Appl. Environ. Microbiol.* **60**:374-376.

Buttner, M.P., P. Cruz, **L.D. Stetzenbach**, A.K. Klima-Comba, V.L. Stevens, and P.A. Emanuel, 2004. Evaluation of the Biological Sampling Kit for Large Area Microbial Surface Sampling. *Appl. Environ. Microbiol.* **70**:7040-7045.

Buttner, M.P., P. Cruz, **L.D. Stetzenbach**, A.K. Klima-Comba, V.L. Stevens, and T.D. Cronin. 2004. Determination of the Efficacy of Two Building Decontamination Strategies by Surface Sampling with Culture and Quantitative PCR Analysis. *Appl. Environ. Microbiol.* **70**:4740-4747.

Buttner, M.P., P. Cruz-Perez, **L.D. Stetzenbach**, P.J. Garrett, and A.L. Luedtke. 2002. Measurement of Airborne Fungal Spore Dispersal from Three Types of Flooring Materials. *Aerobiologia*, **18**:1-11.

Buttner, M.P., P. Cruz-Perez, and **L.D. Stetzenbach**. 2001. Enhanced Detection of Surface-associated Bacteria in Indoor Environments using Quantitative PCR. *Appl. Environ. Microbiol.* **67**:2564-2570.

Buttner, M.P., P. Cruz-Perez, P.J. Garrett, and **L.D. Stetzenbach**. 1999. Dispersal of Fungal Spores from Three types of Air Handling System Duct Material. *Aerobiologia*. **15**:1-8.

Buttner, M.P., A.J. Alvarez, **L.D. Stetzenbach**, and G.A. Toranzos, 1997. PCR Detection of Airborne Microorganisms, pp. 145-158. *In* G.A. Toranzos (ed.), *Environmental Applications of Nucleic Acid Amplification Techniques*, Technomic Publishing Co., Lancaster.

Buttner, M.P. and **L.D. Stetzenbach**. 1996. The Use of an Experimental Room for Monitoring of Airborne Concentrations of Microorganisms, Glass Fibers, and Total Particles, p. 75-86. *In* B.A. Tichenor (ed.), *Characterizing Sources of Indoor Air Pollution and Related Sink Effects*. ASTM 1287, American Society for Testing and Materials, West Conshohocken, PA.

Buttner, M.P. and **L.D. Stetzenbach**. 1993. Monitoring of Fungal Spores in an Experimental Indoor Environment to Evaluate Sampling Methods and the Effects of Human Activity on Air Sampling. *Appl. Environ. Microbiol.* **59**:219-226.

Buttner, M.P. and **L.D. Stetzenbach**. 1991. Evaluation of Four Aerobiological Sampling Methods for the Retrieval of Aerosolized *Pseudomonas syringae*. *Appl. Environ. Microbiol.* **57**:1268-1270.

Craner, J., and **L.D. Stetzenbach**. 1999. Diagnosing the Cause of a >Sick Building=: a case study of an epidemiological and microbiological investigation. *In* E. Johanning (ed.), *Bioaerosols, Fungi and Mycotoxins: Health Effects, Assessment, Prevention, and Control*. Eastern New York Occupational and Environmental Health Center, Albany, NY.

Cross-Smiecinski, A. and **L.D. Stetzenbach**. 1994. *Quality Planning for the Life Science Researcher: Meeting Quality Assurance Requirements*. CRC Press Inc., Boca Raton, FL.

Cruz, P. and **L.D. Stetzenbach**. 2004. Specific Detection of Fungi Associated with SBS when using Quantitative Polymerase Chain Reaction. *Adv. App. Microbiol.* **55**:437-449.

Cruz, P., J.L. Henry, A.K. Klima-Comba, and **L.D. Stetzenbach**. 2002. Air and Surface Sampling Measurements of Fungal Contaminants in Indoor Environments. *Proceedings of Indoor Air 2002*, p. 420-424.

Cruz-Perez, P., M.P. Buttner, and **L.D. Stetzenbach**. 2001. Specific Detection and Quantitation of *Aspergillus fumigatus* in Pure Culture using Quantitative Polymerase Chain Reaction. *Mol. Cellular Probes*. **15**:81-88.

Cruz-Perez, P., M.P. Buttner, and **L.D. Stetzenbach**. 2001. Specific Detection of *Stachybotrys chartarum* in Pure Culture using Quantitative Polymerase Chain Reaction. *Mol. Cellular Probes*. **15**: 129-138.

Lawson, C.N., H.S. Bailey, C.A. Callaway, L. Harriman III, R.H. Lewis, C.M. McDonald, **L.D. Stetzenbach**, W. Thomann. 2005. Minimizing Indoor Mold Problems through Management of Moisture in Building systems. American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc., Atlanta, GA.

Lighthart, B. and **L.D. Stetzenbach**. 1994. Distribution of Microbial Bioaerosol, p. 68-98. *In* B. Lighthart and A.J. Mohr (ed.), *Atmospheric Microbial Aerosols, Theory and Applications*, Chapman and Hall, New York, NY.

Maki, L.R., S-H Shen, R.C. Bergstrom, and **L.D. Stetzenbach**. 1985. Diagnosis of *Corynebacterium pseudotuberculosis* in Sheep, Using an Enzyme-linked Immunosorbent Assay. *Am. J. Vet. Res.* **46**: 212-214.

Metha, S.K., D.M. Bell-Robinson, T.O. Groves, **L.D. Stetzenbach**, and D. L. Pierson. 2000. Evaluation of Portable Air Samplers for Monitoring Airborne Culturable Bacteria. *Am. Indust. Hyg. Assoc. J.* **61**: 850-854.

Sterling, C.R., R.M. Kutob, M.J. Gizinski, M. Verastegui, and **L.D. Stetzenbach**. 1988. *Giardia* Detection Using Monoclonal Antibodies Recognizing Determinants of *In Vitro* Derived Cyst, p. 219-222. *In* P.M. Wallis and B.R. Hammond (ed.), *Advances in Giardia Research*. University of Calgary Press, Calgary.

Stetzenbach, L.D. and M.P. Buttner. 2005. Sampling and Analysis for Mold Contamination in the Indoor Environment. *In* J. Herz, and K. Taylor (ed.), *Toxic Mold Litigation* (on-line version: www.lawyersandjudges.com), Lawyers and Judges Publishing Co., Tucson, AZ.

Stetzenbach, L.D. 2005. Bacteriology of Air, p. 185-194. *In* S.P. Borriello, P.R. Murray, and G. Funke (ed.), *Topley and Wilson's Microbiology and Microbial Infections*, 10th Edition, Bacteriology, Volume 1, Health Sciences Publishing, London.

Stetzenbach, L.D., H.A. Amman. E. Johanning, G. King, R.J. Shaughnessy. 2004. Microorganisms, Mold, and Indoor Air Quality. American Society for Microbiology, Washington, DC.

Stetzenbach, L.D., M.P. Buttner, and P. Cruz. 2004. Detection and Enumeration of Airborne Biocontaminants. *Cur. Op. Biotechnol.* **15**:170-174.

Stetzenbach, L.D., and M.V. Yates. 2003. *The Dictionary of Environmental Microbiology*. Academic Press, San Diego, CA.

Stetzenbach, L.D. 2002. Introduction to Aerobiology, p. 801-813. *In* C. J. Hurst, R.L. Crawford, G. Knudsen, M. McInerney, and L.D. Stetzenbach, (ed.), *Manual of Environmental Microbiology*, second edition. ASM Press, Washington, DC.

Stetzenbach, L.D. 2002. Enhanced Detection of Airborne Microbial Contaminants, p. 1130-1136. *In* Gabriel Bitton (ed.), *Encyclopedia of Environmental Microbiology*. John Wiley and Sons, Inc., New York, NY.

Stetzenbach, L.D., and M.P. Buttner. 2000. Airborne Microorganisms and Indoor Air Quality, pp. 116-125. *In* J. Lederberg (ed.), *Encyclopedia of Microbiology*, second edition. Academic Press, San Diego, CA.

Stetzenbach, L.D. 1998. Microorganisms and Indoor Air Quality. *Clin. Microbiol. Newsletter.* **20**:157-160.

Stetzenbach, L.D. 1997. Introduction to Aerobiology, p. 619-628. *In* C.J. Hurst, G. Knudsen, M. McInerney, M.V. Walter, and L.D. Stetzenbach, (ed.), *Manual of Environmental Microbiology*, ASM Press, Washington, DC.

Stetzenbach, L.D., A.J. Alvarez, and M.P. Buttner. 1996. The Use of Polymerase Chain Reaction (PCR) to Enhance Bioaerosol Monitoring. *In* D.A. Berg (ed.), *Proceedings of the 1994 ERDEC Scientific Conference on Chemical and Biological Defense Research*. Aberdeen Proving Ground, MD.

Stetzenbach, L.D. 1992. Airborne Microorganisms, p. 53-66. *In* J. Lederberg (ed.), *Encyclopedia of Microbiology*. Academic Press, Harcourt Brace Joanovich Publishers, San Diego. CA.

Stetzenbach, L.D., M.P. Buttner, and J.R. Meldrum. 1992. Indoor Air Investigations and Controlled Laboratory Studies using a Variety of Aerobiological Samplers. Institute of Environmental Sciences, Mount Prospect, IL.

Stetzenbach, L.D., B. Lighthart, R.J. Seidler, and S.C. Hern. 1992. Factors Influencing the Dispersal and Survival of Aerosolized Microorganisms, p. 455-465. *In* M. Levin, R.J. Seidler, M.

Rogul, and H.A.P. Pritchard (ed.), *Microbial Ecology: Principles, Methods, and Applications*. McGraw-Hill, Inc., New York, NY.

Stetzenbach, L.D., S.C. Hern, and R.J. Seidler. 1992. Field Sampling Design and Experimental Methods for the Detection of Airborne Microorganisms, p. 543-555. *In* M. Levin, R.J. Seidler, M. Rogul, and H.A.P. Pritchard (ed.), *Microbial Ecology: Principles, Methods, and Applications*. McGraw-Hill, Inc., New York, NY.

Stetzenbach, L.D., L. M. Kelley, and N.A. Sinclair. 1986. Isolation, Identification, and Growth of Well-water Bacteria. *Groundwater*. **24**: 6-10.

Yates, M.V. **L.D. Stetzenbach**, C.P. Gerba, and N.A. Sinclair. 1990. The Effect of Indigenous Bacteria on Virus Survival in Ground Water. *J. Environ. Sci. Health*. **A25**: 81-100.

National and International Meetings (2005-1994)

2005:

Invited Presentations

Stetzenbach, L.D., M. Buttner, and P. Cruz. Surface Sampling for Biocontaminants in Indoor Environments. Biological Background Forum. Department of Homeland Security and Los Alamos National Laboratory, July 27, Santa Fe, NM.

Mold in Indoor Environments – Background Information and Monitoring Practices. Mold the Building Environment. American Society for Heating, Refrigeration, and Air Conditioning Engineers, ASHRAE Webcast April 13, Washington DC.

Bioaerosol and Surface Monitoring for Biothreat Agents. Assessing Anthrax Detection Methods, Government Reform Committee Subcommittee on National Security, Emerging Threats and International Relations, April 5, Washington, DC.

Buttner, P. Cruz, **L.D. Stetzenbach**, A.K. Klima-Comba, V.L. Stevens, and P.A. Emanuel. Evaluation of the Biological Sampling Kit (BiSKit). Advanced Sample Collection Methods and Technologies, National Conference on Environmental Sampling for Bio-threat Agents. January 28, Baltimore, MD.

Cruz, P. M.P. Buttner, and **L.D. Stetzenbach**. Surface Biocontaminant Detection Strategies. Surface Environmental Sample Collection, National Conference on Environmental Sampling for Bio-threat Agents. January 27, Baltimore, MD.

Presentations

Stetzenbach, L.D. Indoor Environmental Quality in Office Buildings and Educational Facilities. Nevada Public Health Association Conference, October 13-14, Lake Tahoe, NV

Cruz, P., **L.D. Stetzenbach**, A.K. Klima-Comba, V.L. Stevens, V.A. Castro, C.M. Ott, D.L. Pierson. Enhanced Detection of Fungi in the Spacecraft Environment. Abstr. Y-051. The 105th General Meeting of the American Society for Microbiology. June 7, Atlanta, GA.

King, G.M., **L.D. Stetzenbach**, A.K. Klima-Comba. Analysis of Cultivable Airborne Bacteria from an Altitude Gradient on Kilauea and Mauna Loa Volcanoes (Hawai'i). Abstr. N-094. The 105th General Meeting of the American Society for Microbiology. June 6, Atlanta, GA.

Klima-Comba, A.K., J.L. Henry, **L.D. Stetzenbach**, G.M. King. Sampling Methodologies for Monitoring Outdoor Culturable Airborne Fungi from Five Locations on Hawai'i. Abstr. Q-003. The 105th General Meeting of the American Society for Microbiology. June 6, Atlanta, GA.

Ott, C.M., V.A. Castro, V.J. Bassinger, S.L. Fontenot, R.J. Bruce, P. Cruz, **L.D. Stetzenbach**, D.L. Pierson. A Comprehensive Characterization of Microorganisms and Allergens in Spacecraft Environment. NASA Bioastronautics Investigators' Workshop, January 10-12, Galveston, TX.

Session Organizer:

Surface Environmental Sample Collection, National Conference on Environmental Sampling for Bio-threat Agents. January 27, Baltimore, MD.

2004:

Invited Presentations

Methods for Monitoring Mold in Indoor Environments. Mold-related Health Effects: Clinical, Remediation Worker Protection, and Biomedical Research Issues. Society for Occupational and Environmental Health, and the National Institute for Environmental Health Science. June 28-29, Washington, DC.

Monitoring of Biocontaminants in Indoor Environments. First International Conference on Fate of Biological Agents, June 9, Williamsburg, VA.

Mold Contamination in Indoor Environments. National Business Institute, April 22, Las Vegas, NV.

Sampling Methods on Various Surfaces using Simulant Organisms. Workshop on Standards and Policies for Decontaminating Public Facilities Affected by Exposure to Harmful Biological Agents, National Academy of Science, January 29, Washington, DC.

Natural Background. Workshop on Standards and Policies for Decontaminating Public Facilities Affected by Exposure to Harmful Biological Agents, National Academy of Science, January 29, Washington, DC.

Mold Contamination in Indoor Environments. Lorman Educational Seminar Series, January 22, Las Vegas, NV.

Presentations

Burns-Savage, N., P.J. Garrett, **L.D. Stetzenbach**, and C. Vanier. Functional Operation of the Collison Nebulizer in Controlled Bioaerosol Experiments utilizing an Environmental Chamber, Abstr. 2602. The 104th General Meeting of the American Society for Microbiology. May 25. New Orleans, LA.

Miller, R.L., J.L. Henry P.J. Garrett and **L.D. Stetzenbach**. Abstr. Q130. Rapid Detection of *Stachybotrys chartarum*, *Aspergillus niger* and Trichothecenes in Laboratory Isolates and Environmental Samples. 104th General Meeting of the American Society for Microbiology. May 25, New Orleans, LA.

2003:

Invited Presentations

Bioaerosols: have recent events changed our perspective on breathing free? Southern California Branch of the American Society for Microbiology, November 8, San Diego, CA.

Overview of Mold Assessment II. 5th International Conference on Bioaerosols, Fungi, Bacteria, Mycotoxins, and Human Health, September 11, Saratoga Springs, NY.

Mold Colonization and Transport in Duct Systems. Impacts of Duct Systems on Indoor Air Quality, American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Annual Meeting, June 29, Kansas City, MO.

Fungal Contamination in Indoor Environments. National Environmental Health Association, 67th Annual Educational Conference, June 9, Reno, NV.

Mold Contamination in Indoor Environments. The Mold Challenge in Nevada, National Business Institute Symposium, June 3, Las Vegas, NV.

Mold Contamination in Indoor Environments. DriEaz Restorative Drying Symposium, May 3, Las Vegas, NV.

Hot Issues - sampling strategy and data interpretation. Mealey=s Mold Litigation Conference 2003, February 3, San Diego, CA.

Presentations

Buttner, M.P., P. Cruz, A.K. Klima-Comba, **L.D. Stetzenbach**, and P. Emanuel. Evaluation of a New Surface Sampling Method for the Detection of Biocontaminants. Abstr. Q-220, Proceedings of the 103rd General Meeting of the American Society for Microbiology, May 20, Washington, DC.

Fungal Biocontamination and Enhanced Detection using Quantitative Polymerase Chain Reaction. Fungal Biocontaminants in Indoor Environments, American Society for Microbiology Colloquium. 103rd General Meeting of the American Society for Microbiology, May 20, Washington DC.

Buttner, M.P., P. Cruz, A. K. Klima-Comba, **L.D. Stetzenbach**, and P. Emanuel. Validation of the BiSKit Sampler for the Detection of Microorganisms on Surfaces. Biodefense Research Conference, American Society for Microbiology, March 10, Baltimore, MD.

Cruz, P., M.P. Buttner, A.K. Klima-Comba, **L.D. Stetzenbach**, and T.D. Cronin. Utilization of a Room-Sized Experimental Chamber for Efficacy Testing of a Decontamination Product. . Biodefense Research Conference, Abstr. 322, American Society for Microbiology, March 10, Baltimore, MD.

Buttner, M.P., P. Cruz, A.K. Klima-Comba, **L.D. Stetzenbach**, and P. Emanuel. Validation of the BiSKit Sampler for the Detection of Microorganisms on Surfaces. Biodefense Research Conference, Abstr. 313, American Society for Microbiology, March 11, Baltimore, MD.

Session Organizer

Fungal Biocontaminants in Indoor Environments. American Society for Microbiology Colloquium, 103rd General Meeting of the American Society for Microbiology, May 20, Washington DC.

2002:

Invited Presentations

Fungal Contamination in Indoor Environments. State of the Art, National Institute of Disaster Restoration and Water Loss Institute Conference and Exposition, May 3, Chicago, IL.

Fungal Contamination in Indoor Environments. California Association for Medical Laboratory Technology Winter Seminar-North, March 23, Sacramento, CA.

Presentations

Bourget, S., P., Jacoby-Garrett, N. Burns-Savage, V. Stevens, P. Messier, and **L. Stetzenbach**. Effectiveness of Triosyn Filters in Reducing Airborne Microbial Concentrations in an Environmental Chamber. Abstr. Q7, Proceedings of the 102nd General Meeting of the American Society for Microbiology, May 20, Salt Lake City, UT.

Buttner, M.P., P. Cruz-Perez, **L.D. Stetzenbach**. Development of Biocontaminant Detection Strategies for Contaminated Surfaces. 2002 MASINT Biological Warfare Science and Technology Symposium, April 30-May 2, Monterey, CA.

Cruz, P., J.L. Henry, A.K. Klima-Comba, and **L.D. Stetzenbach**. Air and Surface Sampling of Fungal Contaminants in Indoor Environments. Indoor Air 2002, 9th International Conference on Indoor Air Quality and Climate, June 30-July 5, Monterey, CA.

Henry, J.L., P. Cruz, and **L.D. Stetzenbach**. Air and Surface Sampling in Residential Environments. Abstr. Q9, Proceedings of the 102nd General Meeting of the American Society for Microbiology, May 20, Salt Lake City, UT.

2001:

Invited Presentations

Biocontaminants in Indoor Air Quality. American Association of Bioanalysts Symposium, May 5, Las Vegas, NV.

Indoor Air Quality I - Microbial Contaminants of Indoor Environments. California Association of Public Health Directors Annual Meeting, April 24, Newport Beach, CA.

Indoor Air Quality II - Sampling and Analysis. California Association of Public Health Directors Annual Meeting, April 24, Newport Beach, CA.

Microbial Contamination. National Air Filtration Association Symposium, April 20, Las Vegas, NV.

Fungal Contaminants in Indoor Environments. University of Texas, Health Science Center at San Antonio, Teleconference Network of Texas, April 10.

Biological Airborne Particulate Matter. Kansas State University Symposium, January 8, Manhattan KS.

Presentations

Buttner, M.P., and **L.D. Stetzenbach**. Fungal Spores Dispersed from Fiberglass Ductboard, Fiberglass liner, and Galvanized Metal Air Handling System Duct Material. Moisture, Microbes and Health Effects: Indoor Air Quality and Moisture in Buildings, American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) IAQ 2001 Conference, November 4-7, San Francisco, CA.

Buttner, M.P., P. Cruz, and **L.D. Stetzenbach**. Detection and Quantitation of *Aspergillus fumigatus* in Pure Culture using Polymerase Chain Reaction. Abstr. F-124, Proceedings of the 101th General Meeting of the American Society for Microbiology, May 23, Orlando, FL.

Cruz, P., M.P. Buttner and **L.D. Stetzenbach**. Specific Detection of *Stachybotrys chartarum* in Pure Culture using Polymerase Chain Reaction. Abstr. Q-145, Proceedings of the 101th General Meeting of the American Society for Microbiology, May 23, Orlando, FL.

Stetzenbach, L.D., M.P. Buttner, and A. Alavi. Evaluation of the Efficacy of Four Carpet Cleaning Methods in Reducing Fungal Contamination in Carpet. Abstr. Q-438, Proceedings of the 101th General Meeting of the American Society for Microbiology, May 23, Orlando, FL.

Buttner, M.P., P. Cruz, and **L.D. Stetzenbach**. Development of Biocontaminant Detection/Identification Strategies for CBrN Countermeasures. 2001 MASINT Biological Warfare Science and Technology Symposium, February 14, Elgin Air Force Base, FL.

2000:

Invited Presentations

Microbial Contamination in Indoor Environments. Texas Tech University Medical Center, October 5, Lubbock TX.

Microbiology of Bioaerosols. National Institute for Occupational Safety and Health (NIOSH), September 13-14, Morgantown, WV.

Microorganisms Indoor - are they making you ill? American Society for Clinical Laboratory Science Annual Meeting, July 26, San Francisco, CA.

Biocontaminants - how do you know if they are present? American Society for Clinical Laboratory Science Annual Meeting, July 26, San Francisco, CA.

Bioaerosols. Waterborne Exposure Route for Microbial Gastrointestinal Illness and Other Diseases, US Environmental Protection Agency Symposium, US Environmental Protection Agency, Office of Water, June 13-14, Arlington, VA.

Suspended in Time and Space. Divisional Group Symposium - Connecting the Ecology of Pathogenic Microorganisms and Disease Outbreaks, 100th General Meeting of the American Society for Microbiology, May 22, Los Angeles, CA.

Presentations

Jacoby-Garrett, P.M., and **L.D. Stetzenbach**. A Comparison of the AGI-30 and SKC BioSampler Air Samplers in Retrieval of Microbial Aerosols from a Controlled Environmental Chamber. Abstr. Q112, Proceedings of the 100th General Meeting of the American Society for Microbiology, May 23, Los Angeles, CA.

Henry, J. L., and **L.D. Stetzenbach**. Isolation of *Stachybotrys chartarum* from Environmental Samples using a Cellulose-based Medium. Abstr. Q114, Proceedings of the 100th General Meeting of the American Society for Microbiology, May 23, Los Angeles, CA.

Buttner, M.P., and **L.D. Stetzenbach**. Application of Molecular Methods for Enhanced Detection of Surface-associated Bacteria in Indoor Environments. 2000 MASINT Biological Warfare Science and Technology Symposium, January 13, Long Beach, CA.

Stetzenbach, L.D. Measurement of Biocontaminants Archived in Liquid Collection Buffers. 2000 MASINT Biological Warfare Science and Technology Symposium, January 13, Long Beach, CA.

1999:

Invited Presentations

Microorganisms and Indoor Air Quality. Indian Health Service symposium, sponsored by the Mid Atlantic Environmental Hygiene Resource Center, December 3, Albuquerque, MN.

Indoor Air Quality - Investigating and Resolving the Microbial Contamination of Indoor Air. National Environmental Health Association Conference, July 7, Nashville, TN.

Indoor Air Quality - the Great *Stachybotrys* Debate. National Environmental Health Association Conference, July 8, Nashville, TN.

Analysis of Biological Detection Technologies. National Academy of Science. January 11-12, Washington, DC.

Presentations

Stetzenbach, L.D., M.P. Buttner, and P. Cruz-Perez. Dispersal of Fungal Spores from Contaminated Flooring Materials. The International Academy of Indoor Air Science (IAIAS), August 10, Edinburgh, Scotland.

Buttner, M.P., P. Cruz-Perez, P. Garrett, and **L.D. Stetzenbach**. Dispersal of Spores from Fungal-Contaminated Duct Material. The International Academy of Indoor Air Science (IAIAS), August 10, Edinburgh, Scotland.

Fungal Spores Aerosolized from Contaminated Flooring Materials. Environmental Microbiology: Bioaerosols and Biosafety, American Industrial Hygiene Conference and Exposition, June 9, Toronto, Canada.

Buttner, M.P., P. Cruz-Perez, P.J. Garrett, and **L.D. Stetzenbach**. A Comparison of the Airborne Dispersal of Fungal Spores from Contaminated Flooring Materials following Human Activity. Abstr. Q232, Proceedings of the 99th General Meeting of the American Society for Microbiology. June 1, Chicago, IL.

Buttner, M.P., P. Cruz-Perez, and **L.D. Stetzenbach**. Sampling Methods for the Detection and Quantitation of Surface-associated Microorganisms using Polymerase Chain Reaction. Abstr. Q229, Proceedings of the 99th General Meeting of the American Society for Microbiology, June 1, Chicago, IL.

Microorganisms and Indoor Air Quality. Advances in Indoor Air Quality. American Society for Microbiology Workshop, 99th General Meeting of the American Society for Microbiology, May 29, Chicago, IL.

Test Methods to Assess Contamination in HVAC Systems. Indoor Environment >99. April 21, Austin, TX.

Enhanced Detection of Airborne and Surface-associated Biocontaminants. American Association for the Advancement of Science Workshop - Research in Domestic Preparedness: Ensuring Security, Protecting Infrastructure, and Preventing Violence. March 15-16, Stillwater, OK.

1998:

Invited Presentations

National Aeronautics and Space Administration (NASA) strategic planning workshop - Environmental Health for Space Station and Mars Mission. December 7-9, Washington, DC.

Indoor Re-aerosolization. Joint Department of Defense and Department of Energy Urban Hazard Modeling workshop. August 25-26, Alexandria, VA.

Indoor Air Quality. Chemical Specialties Manufacturers= Association Indoor Air Quality Committee Meeting, May 28, Chicago, IL.

Olin Corporation Workshop on Indoor Air Quality, Drexel University, May 7, Philadelphia, PA

Monitoring and Measuring Contaminant Concentrations II Technical Session, Indoor Environment >98, April 15, Washington, DC

Naval Surface Warfare Center Information Exchange on Bio-aerosol Sample Collection, March 18, Dahlgren, VA.

Presentations

Diagnosing the Cause of a >Sick Building= - a Case Study of an Epidemiological and Microbiological Investigation. 3rd International Conference on Bioaerosols, Fungi, and Mycotoxins. September 23-25, Saratoga Springs, NY.

Indoor Air Quality. National Environmental Health Association workshop. 62nd Annual Education Conference and Exposition, June 28, Las Vegas, NV.

Fungal Spores Dispersed from Air Handling System duct - a Comparison of Three Fungal-Contaminated Duct Materials. American Industrial Hygiene Conference and Exposition, Indoor Air Quality - Session II, May 13, Atlanta, GA.

Microorganisms and Indoor Air Quality. Indoor Air Quality. American Society for Microbiology Workshop, 98th General meeting of the American Society for Microbiology, May 17, Atlanta, GA

Microbiological Contaminants of Indoor Environments. Microbiological Contaminants of Indoor Environments, presented by the Mid-Atlantic Environmental Hygiene Resource Center, PA, February 4-6 New Orleans, LA.

Sampling Techniques and Procedures for Microbiological Contaminants. Microbiological Contaminants of Indoor Environments, presented by the Mid-Atlantic Environmental Hygiene Resource Center, PA, February 4-6 New Orleans, LA.

Session Organizer

Indoor Air Quality. American Society for Microbiology Workshop. 98th General Meeting of the American Society for Microbiology, May 17, Atlanta, GA.

1997:

Invited Presentations

Microorganisms and Indoor Air Quality. Indoor Air Quality, PDA Training and Research Institute Workshop, PDA Training and Research Institute, November 14, Philadelphia, PA.

Microorganisms and Indoor Air Quality. A New Age for Microbiology, American Society for Microbiology Southern California Branch Annual Meeting, November 8, Irvine, CA.

Microbes and the Indoor Air Environment. Microorganisms and Indoor Environmental Quality. Society for Industrial Microbiology Annual Meeting, August 5, Reno, NV.

Microorganisms and Indoor Air Quality. Indoor Air Quality. American Society for Microbiology Workshop. 97th General Meeting of the American Society for Microbiology, May 4, Miami Beach, FL.

Presentations

Dispersal of fungal spores from Contaminated Metal and Fiberglass Duct. Engineering Solutions to Indoor Air Quality Problems symposium, Air and Waste Management Assoc. and the US Environmental Protection Agency, July 21-23, Research Triangle Park, NC.

Microbiological contaminants of indoor environments: bacteria, virus, and other microorganisms. Biological Contaminants of Indoor Environments, Mid-Atlantic Environmental Hygiene Resource Center, PA, US Environmental Protection Agency, Region 5, and the National Association of County and City Health Officials, April 16-18, Chicago, IL.

Sampling and Analysis Techniques and Procedures. Biological Contaminants of Indoor Environments, Mid-Atlantic Environmental Hygiene Resource Center, PA, US Environmental Protection Agency, Region 5, and the National Association of County and City Health Officials, April 16-18, Chicago, IL.

Session Organizer

Indoor Air Quality. PDA Training and Research Institute Workshop, PDA Training and Research Institute. November 14, Philadelphia, PA.

Microorganisms and Indoor Environmental Quality. Society for Industrial Microbiology Symposium, Society for Industrial Microbiology Annual Meeting, August 5, Reno, NV.

Indoor Air Quality. American Society for Microbiology symposium. 97th General Meeting of the American Society for Microbiology, May 4, Miami Beach, FL.

1996:

Invited Presentations

Indoor Air Quality - Microbiological Considerations. 5th Western Pacific Congress of Chemotherapy and Infectious Diseases, December 1, Singapore.

Carlyn Halde Foundation Lecturer: Environmental Mycology - *Stachybotrys atra* Case Studies. American Society for Microbiology Northern California Branch and the Northern California Association of Public Health Microbiologists, November 15, San Jose, CA.

Microorganisms and Indoor Air Quality. Indoor Air Quality. American Society for Microbiology Workshop, 96th General Meeting of the American Society for Microbiology, May 19, New Orleans, LA.

Presentations

Buttner, M.P., L.E.M. Cole, P. Cruz-Perez, and **L.D. Stetzenbach**. Comparison of Selected Culture Media for the Retrieval of Airborne Fungi. Abstr. Q11, Proceedings of the 96th General Meeting of the American Society for Microbiology.

Dvorsky, E., G.A. Toranzos and **L.D. Stetzenbach**. An Alternative Method for the Detection of Airborne *Legionella* spp. Abstr. Q17, Proceedings of the 96th General Meeting of the American Society for Microbiology.

Microbiological Contaminants of Indoor Environments - Bacteria, Virus, and Other Microorganisms. Biological Contaminants of Indoor Environments, sponsored by the Mid-Atlantic Environmental Hygiene Resource Center, Philadelphia, PA, US Environmental Protection Agency, Region 9, and the University of Tulsa, March 27-29, San Diego, CA.

Sampling and Analysis Techniques and Procedures. Biological Contaminants of Indoor Environments, sponsored by the Mid-Atlantic Environmental Hygiene Resource Center, Philadelphia, PA, US Environmental Protection Agency, Region 9, and the University of Tulsa, March 27-29, San Diego, CA.

Session Organizer

Indoor Air Quality. American Society for Microbiology Workshop. 96th General Meeting of the American Society for Microbiology, May 19, New Orleans, LA.

1995:

Invited Presentations

Microorganisms and Indoor Air Quality. Indoor Air Quality: Microbiological Considerations. American Society for Microbiology workshop. 95th General Meeting of the American Society for Microbiology, May 21, Washington, DC.

Case studies. Indoor Air Quality: Microbiological Considerations. American Society for Microbiology Workshop. 95th General Meeting of the American Society for Microbiology, May 21, Washington, DC.

Presentations

Alvarez, A.J., M.P. Buttner, and **L.D. Stetzenbach**. Effects of Environmental Interference and Sampling Stress on PCR for Bioaerosol Monitoring. Abstr. Q368, Proceedings of the 95th General Meeting of the American Society for Microbiology, p. 464.

Microbiological Contaminants of Indoor Environments. Biological Contaminants of Indoor Environments. Mid-Atlantic Environmental Hygiene Resource Center Workshop, Philadelphia, PA, January 11-13, St. Petersburg, FL.

Sampling Techniques. Biological Contaminants of Indoor Environments. Mid-Atlantic Environmental Hygiene Resource Center Workshop, Philadelphia, PA, January 11-13, St. Petersburg, FL.

Session Organizer

Indoor Air Quality: Microbiological Considerations. American Society for Microbiology workshop. 95th General Meeting of the American Society for Microbiology, May 21, Washington, DC.

1994:

Invited Presentations

Microbial Indoor Air Quality. Keynote Speaker, Sociedad De Microbiologos de Puerto Rico, January 28, San Juan, Puerto Rico.

Microorganisms and Indoor Air Quality. Indoor Air Quality, Part I. American Society for Microbiology workshop. 94th General Meeting of the American Society for Microbiology, May 22-23, Las Vegas, NV.

Identification of Airborne Bacteria. Indoor Air Quality, Part II. American Society for Microbiology Workshop. 94th General Meeting of the American Society for Microbiology, May 22-23, Las Vegas, NV.

Microbial Aerosols. Methods for Detecting Microorganisms in the Environment: What's New? What's Next? American Society for Microbiology Symposium. 94th General Meeting of the American Society for Microbiology, May 26, Las Vegas, NV.

Presentations

Progress in Methods Development for Monitoring Microorganisms in Bioaerosols, American Society for Microbiology Symposium Roundtable. 94th General Meeting of the American Society for Microbiology, May 27, Las Vegas, NV.

The Microbiology of Indoor Environments. Assessing Microbiological Contamination of Indoor Environments symposium. Mid-Atlantic Environmental Hygiene Resource Center, Philadelphia, PA, April 6-8, Fairfax, VA.

Monitoring for Airborne Bioaerosols. Assessing Microbiological Contamination of Indoor Environments. Mid-Atlantic Environmental Hygiene Resource Center, Philadelphia, PA, April 6-8, Fairfax, VA.

Session Organizer

Indoor Air Quality, Part I and Part II. American Society for Microbiology workshop. 94th General Meeting of the American Society for Microbiology, May 22-23, Las Vegas, NV.

Methods for Detecting Microorganisms in the Environment: What's New? What's Next? American Society for Microbiology Symposium, 94th General Meeting of the American Society for Microbiology, May 26, Las Vegas, NV.

Honors/Appointments/Committees

Editor, 2001-2004. Applied and Environmental Microbiology, American Society for Microbiology, Washington, DC.

Editorial Board, 2004-2006. Manual of Environmental Microbiology, 3rd edition in preparation, ASM Press, Washington, DC.

Editorial Board, 2002. Encyclopedia of Environmental Microbiology, John Wiley and Sons, Inc., New York.

Editorial Board, 2002, Manual of Environmental Microbiology, 2nd edition, ASM Press, Washington, DC.

Editorial Board, 2000-2002. Microbial Ecology, Springer, New York.

Editorial Board, 1999-2001. Aerobiologia, Kluwer Academic Publishers, The Netherlands.

Editorial Board, 1999-2001. Journal of Industrial Microbiology and Biotechnology, Stockton Press, England.

Editorial Board, 1995-1997 and 1998-2000. Applied and Environmental Microbiology, American Society for Microbiology, Washington, DC.

Editorial Board, 1997, Manual of Environmental Microbiology, ASM Press, Washington, DC.

Committee Chair, Institutional Biosafety Committee, 2005 – present. University of Nevada, Las Vegas.

Member, Waksman Foundation for Microbiology Lectures Program, 2005-2007. American Society for Microbiology, Washington, DC.

Member, Science Advisory Board, Homeland Security Advisory Committee, 2005 – present. Office of the Administrator, US Environmental Protection Agency, Washington, DC.

Member, Committee on Environmental Microbiology, 2001-2007. Public and Scientific Affairs Board, American Society for Microbiology, Washington, DC.

Member, Board of Directors, 2004-present. National Center for Energy Management and Building Technologies, Alexandria, VA.

External Advisory Board Member, 2001-2006. Cincinnati Childhood Allergy and Air Pollution Study, University of Cincinnati, Cincinnati, OH.

Member, Advisory Board, 2002. Defense Threat Reduction Agency, Ft. Belvoir, VA.

Member, Special Project Committee (SPC 180P – Standard Practice for Inspection and Maintenance for HVAC Systems), 2004-present. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), Atlanta, GA.

Member, Bioaerosols Committee, American Conference of Governmental Industrial Hygienists (ACGIH), 2004-present.

Member, Environmental Health Committee, 2001-2004. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), Atlanta, GA.

Peer Review Panelist, July 2004. National Institutes of Health ZRG1 IDM-B 12 V.E.P. Special Emphasis Panel, Washington DC.

Peer Review Panelist, March 2004. National Institutes of Health ZRG1 SSS-Z 10B Study Section, Washington DC.

Peer Review Panelist, November 2003. National Institutes of Health, Washington, DC.

Peer Review Panelist, May 2003. National Institutes of Allergy and Infectious Diseases/National Institutes of Health, Planning Grants for Regional Centers of Excellence for Bioterrorism and Emerging Infectious Diseases, Gaithersburg, MD.

Peer Review Panelist, March 2003. National Institutes of Health, Washington, DC.

Peer Review Panelist, November 2002. National Institutes of Health SBIR/STTR Infectious Diseases and Microbiology Study Section, Washington, DC.

Peer Review Panelist, October 2002. Bacteriology and Mycology Subcommittee, National Institutes of Health, Washington, DC.

Study Panelist, January 11- 12, 1999. National Academy of Science, Washington, DC.

Discussant, January 11-12. Workshop on the Methodology for Implementing Timely Incident Response, Water Environment Research Foundation, Alexandria, VA.

Chair, US Environmental Protection Agency, National Environmental Research Laboratory Peer Review Panel, Cincinnati, OH, July 2001.

Chair-Elect, 2001-2002 and **Chair**, 2002-2003. Environmental and General Applied Microbiologists - Division Q, American Society for Microbiology.

Alternate Councilor, 1992-1994 and **Councilor**, 1994-1996. Environmental and General Applied Microbiologists - Division Q, American Society for Microbiology.

Award of Excellence, March 1990. Environmental Monitoring Systems Laboratory - Las Vegas, U.S. Environmental Protection Agency. Recognition for participation in the US EPA bioremediation research project in Valdez, Alaska following the Exxon Valdez oil spill in Prince William Sound and in the US EPA Headquarters' indoor air quality monitoring survey.

Book Reviewer, 1995. Health Implications of Fungi in Indoor Environments, R.A.Samson, B. Flannigan, M.E. Flannigan, A.P. Verhoff, O.C.G. Adan, and E.S. Hoekstra (ed.), Elsevier Science, Inc., New York. Review published in Mycopathologia, Vol. 4, p. 1.

Professional Organizations

American Conference of Governmental Industrial Hygienists (ACGIH) (2004-present)
American Industrial Hygiene Association (1994-present)
American Society of Heating, Refrigerating, and Air Conditioning Engineers
(ASHRAE; 2002-present)
American Society for Microbiology (1983-present)
Indoor Air Quality Council, Las Vegas Chapter (2000-2004)
International Society of Indoor Air Quality and Climate (ISIAQ; 1999-present)
Mycological Society of America (1994-2004)
Nevada Public Health Association (2005 – present)

Research Funding

Governmental:

Lawrence Livermore National Laboratory (LLNL)
National Aeronautics and Space Administration (NASA)
National Institute of Occupational Safety and Health (NIOSH)
State of Nevada, Risk Management
U.S. Department of Defense
U.S. Department of Energy
U.S. Environmental Protection Agency

Industry:

E.I. DuPont de Nemours, Inc.
Exponent
Harris Research, Inc.
Masco Corporation
North American Insulation Manufacturers Association
S.C. Johnson and Sons, Inc.
Triosyn Corporation
Triton Systems

Graduate Faculty/Graduate Student Thesis/Dissertation Committees/Mentoring

Graduate Faculty and Course Organizer, Science of Catastrophic Incidents (ECEM 722),
Executive Masters in Crisis and Emergency Management, University of Nevada, Las Vegas.

Associate Graduate Faculty, Department of Environmental Sciences and Health, University of Nevada, Reno.

Associate Graduate Faculty, Department of Environmental Sciences, University of Nevada, Las Vegas.

Associate Graduate Faculty, Department of Chemistry, University of Nevada, Las Vegas. 1995-2003.

Associate Graduate Faculty, Department of Health Physics, University for Nevada, Las Vegas. 1997-1999

Committee Member for Lazaro Eleuterio, 2005-present, Department of Civil and Environmental Engineering, University of Nevada, Las Vegas - Jacimaria Batista, Advisor.

Committee Member for Alex Aguiar, 2003-present, Department of Civil and Environmental Engineering, University of Nevada, Las Vegas - Jacimaria Batista, Advisor.

Committee Member for Shar Todd, Ph.D., degree awarded May 2003, University of Nevada, Reno - Stan Omaye, Advisor.

Dissertation Advisor to Patricia Cruz-Perez, Ph.D., degree awarded December 2000. Environmental Sciences and Health, University of Nevada, Reno.

Dissertation Advisor to Mark P. Buttner, Ph.D., degree awarded May 2000. Environmental Sciences and Health, University of Nevada, Reno.

Mentor for A.J. Alvarez, Ph.D. 1994-1995. National Science Foundation Minority Postdoctoral Research Fellowship Program.

Committee Member for Sandra Story, M.S. 1994. Department of Biological Sciences, University of Nevada, Las Vegas - Penny Amy, Advisor.

Patents/Licenses Awarded

University of Arizona (UA 805 - AMonoclonal Antibodies Unique to *Giardia* Cyst Wall Determinants@) licensed to Meridian Diagnostics, 1987. Co-inventor: Charles R. Sterling, Department of Veterinary Science, University of Arizona.